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ABSTRACT

Personal characteristics of 58-inner city teachers (fourth through eighth grades) were analyzed for their relations to student achievement. The assumption supporting this analysis is that teachers' influence upon students is pervasive and powerful and, therefore, knowledge of teachers' motivational beliefs (personal causation) and orientation (perception of locus of control) helps to account for variation in student achievement. Three expected relationships were tested: (1) the more a teacher has an internal locus of control, the more active and adaptive his classroom behavior is likely to be and the higher his students are likely to achieve; (2) the more a teacher generally experiences behavior with a sense of personal causation, the more purposive and determined his classroom behavior is likely to be and the higher his students are likely to achieve; and (3) the extent to which a teacher perceives behavior with an internal locus is unrelated to the extent to which a teacher experiences behavior with a sense of personal causation. The "Origin-Pawn Measure" and the "Internal-External Locus of Control Scale" were used to gather information on teacher characteristics; the "Iowa Test of Basic Skills" was used to measure student achievement. Findings support the distinction between personal causation and locus of control and demonstrate the value of each in analyzing the relationship between teacher characteristics and student achievement...(MM)

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Personal Causation and Locus of Control: An Analysis of Selected Teacher Characteristics and Their Relations to Student Achievement

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Introduction

Over the last ten years, deCharms and his students have explored the meaning of being a student or a teacher in a public school classroom. Somewhat uniquely, they have done so using a motivational frame of reference.

DeCharms (1972, 1976) conducted a field-based project intended to enhance the motivation of inner-city teachers and their students. The three year project consisted of motivation training coupled with systematic assessment of student motivation, student experience of classroom atmosphere, and academic achievement. Koenigs, Fiedler, and deCharms (in press) have focused on the relationships among teacher characteristics, degree of student influence within teacher/student interactions, student experience of classroom atmosphere, and academic achievement.

The present investigation is part of this overall effort. A teacher's experience of personal causation (deCharms, 1968) and perception of control over the outcomes of behavior (Rotter, 1966) are analyzed with respect to student achievement. The assumption supporting this analysis is that teachers' influence upon students is pervasive and powerful. Knowledge of teachers' motivational beliefs and orientations therefore helps to account for variation in student achievement.

The remainder of the introduction presents the above concepts, discusses their similarities and differences, and explores their significance, as teacher characteristics, for student achievement.

Personal Causation: Origin vs. Pawn

DeCharms' concept of personal causation (1968, 1972, 1976) is the core of his motivational analysis of classroom dynamics. A person experiences personal causation when he effectively brings about intended changes in the environment. The "locus of causality" (Heider, 1958) for such behavior is internal. The experience of personal causation relies upon commitment to the goals of behavior, striving within this context of meaningful goals, and acceptance of personal responsibility

for the consequences of goal-directed behavior. This experience identifies man's motivational nature as a purposeful agent acting upon his environment (deCharms, 1968).

A useful distinction within this concept is that of Origin and Pawn. A person acting as an Origin experiences personal causation. An Origin strives towards goals which are invested with commitment; he owns his goals and tries to realize them. In contrast, a person acting as a Pawn lacks personal causation. A Pawn reacts rather than strives. The guides for his behavior are experienced as imposed regulations rather than invested goals.

DeCharms has explored both the situational and personological significance of this distinction. Situationally, Origin experiences are more likely in settings encouraging choice and Pawn experiences are more likely in settings fixed by imposed constraints (Koenigs, Fiedler, & deCharms, in press; deCharms, Dougherty & Wurtz, Note 1; Kuperman, Note 2). Personologically, characterizing students as either predominantly Origin or Pawn in outlook reveals predicted differences in academic achievement (deCharms, 1972, 1976). Thus, not only are persons more likely to be Origins under some circumstances and Pawns under others, but any particular person probably has more of an Origin or Pawn outlook.

Muir and deCharms (Note 3) have distinguished between two kinds of Origin orientation. The distinction is based on a refinement which recognizes that a person's goals primarily can be either defined by himself or defined by situational demands. In either case, if the person experiences commitment to his goals, he acts as an Origin. Thus, the individual who typically experiences personal causation for self-defined goals can be described as having a self-generated Origin orientation. Likewise, the individual who more typically experiences personal causation for situationally defined goals can be described as having a context-derived Origin orientation.

Muir and deCharms (Note 3) have employed this distinction as a student characteristic in accounting for the academic achievement of seventh grade students. The Origin orientations were found to be mutually orthogonal, and each accounted for significant portions of the variance in achievement over and above that accounted for by I.Q.

Locus of Control: Internal vs. External,

Rotter's (1954) social learning theory attempts to explain the occurrence behavior in terms of; 1) the expectancy that behavior leads to a given reinforcement, 2) the value of such reinforcement, and 3) the situational influence upon 1) and 2). The concept of locus of control (Rotter, Seeman, and Liverant, 1962; Rotter, 1966) was developed to provide further refinement to this explanatory attempt.

Locus of control refers to a person's generalized belief or expectancy about the degree of contingency between outcomes of behavior and behavior itself. At issue is not simply a person's experience of successful and unsuccessful outcomes. Rather, the concept characterizes the way in which a person typically interprets the causes of these outcomes (Lefcourt, 1976).

In ideal terms, a person with an internal locus of control perceives the outcomes of behavior as causally related to his skills, effort, and personal characteristics. A person with an external locus of control perceives behavioral outcomes as dependent, not on his skills and dispositions, but on the whims of chance, the destiny of fate, or the power of others.

Rotter (1966) has hypothesized that consistent individual differences exist regarding the degree to which persons generally perceive causality between behavior and outcomes in a given situation. This hypothesis is supported by a great deal of research which confirms the existence of individual differences in perceived locus of control and relates these differences to various qualitites of human behavior. For example, persons characterized as perceiving their behavior with an internal,

as compared to external, locus of control tend to; 1) be more alert to environmental cues relevant for future behavior, 2) strive more often to improve environmental conditions, 3) place greater value on achievement, and 4) be more resistant to influenct attempts (Rotter, 1966; cf. Lefcourt, 1966, 1976 for comprehensive literature views).

Gurin, Gurin, Lao, and Beattie (1969) have administered a modified version of the Internal-External Locus of Control scale (Rotter,1966) to Black students and adults. Through factor analysis, they refined further the notion of locus of control for this population by deriving a self-other distinction between personal control and control ideology. The personal control factor pertains to one's perception of contingency between outcome and behavior within the realm of personal experience. The control ideology factor refers to the same perception within the realm of cultural events at large, at an ideological level. The authors generally found that individual differences in internal vs. external orientation revealed predicted differences on measures of motivation and performance for the personal control factor, but not for the control ideology factor.

Comparison of Personal Causation and Locus of Control

Recent literature (Lefcourt, 1976; Steiner, 1970) often slights the distinction between personal causation and locus of control. While the concepts have some conceptual commonality, their theoretical bases and explanatory emphases are distinct enough to warrant their separate consideration.

Each concept refers to the relation between a person and his behavior, and does so in terms of personal control. Likewise, the significance of each has been explored in both situational and personological terms.

But the two concepts diverge significantly in their theoretical contexts and specific foci. Locus of control stems from Rotter's (1954) social learning theory, which represents a merging of the instrumental activity→reinforcement paradigm with

the expectancy X value paradigm. The theory views behavior as instrumental to reinforcement, with reinforcement varying in expectancy of attainment and in value, depending on the situation. Personal causation, on the other hand, stems from Heider's (1958) analysis of action; a viewpoint which emphasizes the experience of intentionality as an important dimension of behavior.

Further, though each concept refers to personal control within behavior, each uses a different focus to do so, a focus consistent with its respective theoretical context. Locus of control characterizes the relative degree to which a person perceives control over the reinforcement, or outcome, of his behavior. Personal causation characterizes the extent to which a person experiences control over, or causality for, behavior itself. Far from being equivalent, these foci are independent of one another. The extent to which a person perceives causality between behavior and outcome has no a priori relation to the extent to which he experiences causality for his behavior.

This posited independence between the two concepts is supported empirically with evidence from Kuperman (Note 2) and deCharms (1976). Kuperman found that measures of personal causation, but not a measure of locus of control, succeeded in discriminating between experiences in Origin and Pawn situations. Further, deCharms found that a locus of control measure (Battle and Rotter, 1963) was insensitive to personal causation training and unrelated to a measure of personal causation.

Expected Relations

The more a teacher generally expects the outcomes of his behavior to be causally related to personal skills, effort, and dispositions (i.e. the more a teacher has an internal locus of control), the more active and adaptive his classroom behavior is likely to be. Thus, the higher his students are likely to achieve. Similarly, the more a teacher generally experiences behavior as a striving towards goals which are invested with commitment (i.e., the more a teacher experiences

behavior with a sense of personal causation) the more purposive and determined his classroom behavior is likely to be. And again, the higher his students are likely to achieve. Finally, the extent to which a teacher perceives behavior with an internal locus of control is expected to be unrelated to the extent to which a teacher experiences behavior with a sense of personal causation.

The present investigation tests these expected relationships. Teachers' perception of locus of control and experience of personal causation will each be related to classroom averages of academic achievement and to one another. In addition, the previously discussed refinements for each general concept (self-generated vs. context-derived Origin orientation within personal causation; personal control and control ideology within locus of control) are evaluated for their contribution as teacher characteristics in accounting for variations in student achievement.

Methodology

Subjects

The sample consists of 58 fourth through eigth grade teachers from a predominantly Black, low socioeconomic status urban school district. All were recruited on a volunteer basis over a period of two years. To the investigators' knowledge, the teachers had no prior exposure to training or measures relevant to the concepts under study.

Measures

Teacher Characteristics

The Origin-Pawn Measure (Plimpton, Note 4; Muir & deCharms, Note 3) uses content-analysis to assess the degree to which a person has an Origin outlook. Imaginative stories written to six standardized cues (adapted from Winterbottom, 1958) are scored for the following categories: goal setting, instrumental activity, reality

perception, personal responsibility, and self-confidence. The maximum score for all six stories is 30; the higher a person's score, the more he has an Origin outlook. Muir and deCharms' distinction between types of Origin orientation is accommodated by establishing "context-derived" and "self-generated" dimensions for each scoring category. A student's total score for each Origin orientation is derived by summing over all six stories. Interscorer reliability for the measure meets the criterion level of .90.

The Internal-External Locus of Control scale (Rotter, 1966) is a forced-choice questionnaire which assesses the extent to which a person perceives outcomes of behavior as either contingent upon personal skill and effort (internal control) or dependent upon chance, fate, or powerful others (external control). The questionnaire contains 29 items, 6 of which are fillers; total score ranges from 0 to 23. The higher the score, the more the individual has an external locus of control. For the present study, scores for the factors of personal control and control ideology (Gurin et. al., 1969), as well as the total score, are computed.[2]

Student Achievement

Scores from the Iowa Test of Basic Skills (Lindquist and Hieronymous, 1955) for vocabulary, reading, language, and arithmetic were obtained for students in each teacher's classroom. A composite score for each student was derived by summing across the above sub-tests.

Procedure and Analysis

Measures of teacher characteristics were collected during single sessions. Student achievement data were collected and transformed to attain equivalency across grade levels. Using these transformed scores, classroom means, based on 6 randomly selected students per classroom (3 boys and 3 girls), were computed. Pearson product-moment correlation coefficients were then obtained for the expected relations.

Results

Table 1 presents descriptive statistics for each variable.

Insert table 1 about here

Table 2 presents Pearson product-moment correlation coefficients for the expected relationships.

Insert table 2 about here

The general Origin-Pawn variable (Total), as a teacher characteristic, is not consistently related to student achievement. However, a dramatic difference in the relationships between each Origin orientation as a teacher characteristic and student achievement is evident. The Self-generated Origin Orientation variable is consistently unrelated to student achievement. The Context-derived Origin Orientation variable is significantly related to all areas of student achievement.

Also evident is the consistent negative relationship between the general Locus of Control variable (Total) as a teacher characteristic and all areas of academic achievement except Vocabulary. The negative relationship means that the more internal a teacher's perceived locus of control, the higher the level of student achievement. The Personal Control variable lacks significant relationship to any area of student achievement, while the Control Ideology variable is strongly related to all areas of student achievement.

The relationship between teachers' Origin-Pawn scores and their Locus of Control scores is negligible, both at the level of general, and refined variables.

Because of the pattern of relationships which emerged, a two-way analysis of variance (2x2) testing the main effects of teachers' Context-derived Origin Orientation and general Locus of Control on students' Composite achievement was conducted. High and low factors for each variable were formed by median splits. Results are shown in table 3. The main effect for each variable is highly significant, with a

negligible interaction effect. Students taught by teachers with a strong context-derived Origin orientation are about 7 months higher in composite achievement than students taught by teachers with a weak context-derived Origin orientation. Likewise, students taught by teachers with an internal locus of control are approximately 5 months higher in composite achievement than students taught by teachers with an external locus of control. And students taught by teachers with both a strong context-derived Origin orientation and an internal locus of control are approximately 11 months higher in composite achievement than students taught by teachers with a weak context-derived Origin orientation and an external locus of control.

Discussion

The results support the assumption underlying this investigation; a teacher's motivational beliefs and orientations have significance for student achievement.

Although a teacher's tendency to act as an Origin in a general sense is not related consistently to student achievement, the more discriminating analysis of a teacher's Origin orientation reveals clear-cut relationships. A teacher's tendency to experience personal causation for goals defined by situational demands (i.e. a teacher's context-derived Origin orientation) is directly and consistently related to student achievement. But a teacher's tendency to experience personal causation for self-defined goals (i.e., a teacher's self-generated Origin orientation) is unrelated to student achievement. This differential relationship between teacher type of Origin orientation and student achievement is understandable because of (1) the established format and fixed expectations characteristic of this particular school district's general curriculum and (2) the built-in relatedness between a district's curriculum and its adopted achievement test. The relative strength of a teacher's context-derived Origin orientation is likely to be more relevant to the implementation of established curricular demands, and thus to the level of student achievement as assessed by a standardized test, than is the relative strength of a

teacher's self-generated Origin orientation. The results support this likelihood.

Rotter (1975) has emphasized that the Internal-External Locus of Control scale (Rotter, 1966) is a broad-based measure of generalized belief, and therefore should not be expected to yield precise predictions in specific areas of concern. In light of this measurement consideration, the consistent relationship obtained between teacher internality and student achievement is impressive.

The more refined analysis of locus of control in terms of control ideology and personal control (Gurin, et.al, 1969) provides unexpected findings. Gurin et.al. generally found that Black students' perceptions of internality in terms of personal control, but not in terms of control ideology, were related to measures of motivation and performance. In the present study, the opposite is true. Teachers' perceptions of internality in terms of control ideology, but not in terms of personal control, are related to their students' achievement. Apparently the extent to which teachers perceive that the "system" in general is responsive to individual merit has more relevance for the achievement level of their students than the extent to which teachers perceive that such is the case in their personal lives.

The concepts of personal causation and locus of control, when used to characterize teachers, are consistently related to student achievement but unrelated to each other. This finding confirms the independence of these concepts argued for earlier in the introduction. The lack of empirical relationship can be accounted for in at least three ways; 1) the concepts are theoretically distinct and refer to unrelated aspects of behavior, 2) their measurement techniques (the Origin-Pawn measure is an operant measure and the Internal-External Locus of Control scale is a respondent measure; cf McClelland, 1965) are sufficiently distinct to limit empirical relationship, or 3) some combination of 1) and 2). Although the first alternative is the formal position of this invesigation, the third alternative is a more probable explanation. As such, further research aimed at separately

analyzing the theoretical and measurement interrelationships of these concepts is warranted.

Summary and Implication

This investigation supports the distinction between personal causation and locus of control, and demonstrates the value of each in analyzing the relationship between teacher characteristics and student achievement. To blur the concepts together in analyzing the theoretical and practical import of each is conceptually misguided and empirically imprecise. Considering the susceptibility of each concept to training (cf. Lefcourt, 1976; deCharms, 1976), the findings reported here have direct implications for teacher-training and in-service programs.

Reference Notes

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Footnotes

[1]The masculine pronoun is utilized throughout this paper for ease of communication. It is understood the pronoun refers to both sexes.

[2]Personal control items in this study are 9,13,15,25,and 28; control ideology items are 6,7,10,11,16,18,20,23, and 26. The present measure does not include all the control ideology items used by Gurin, et.al. (1969).

Table 1

Descriptive Statistics

Variable	Mean	S.D.	n
Teacher Characteristics			
Origin-Pawn			
Total	8.3	4.0	57
Self-generated	4.3	3.3	57
Context-derived	3.0	2.4	57
Locus of Control			
Total	10.9	4.0	57
Personal Control	1.7	1.3	57
Control Ideology	4.6	1.8	57
Student Achievement (classroom level)			
Iowa Test of Basic Skills			
Vocabulary	90.3* (10 mos.)**	10.0	55
Reading	88.8* (11 mos.)**	7.7	55
Language	97.0* (3 mos.)**	8.6	55
Arithmetic	91.0* (9 mos.)**	6.8	55
Composite	366.7* (8 mos.)**	30.8	55

* Transformed score for across-grade level equivalency
** Number of months below expected grade level represented by transformed score

Table 2

Pearson Product-Moment Correlation Coefficients

	Variables	1	2	3	4	5	6	7	8	9	10	11
Origin-Pawn n=53	1 Total	1.00	.75	.45	-.05	-.03	-.04	.21	.33**	.18	.19	.24
	2 Self-generated		1.00	-.16	.00	-.01	-.09	-.03	.14	-.03	.02	.02
	3 Context-derived			1.00	-.11	-.03	-.17	.35**	.29**	.31**	.27*	.34**
Locus of Control n=54	4 Total				1.00	.70	.84	-.26	-.32**	-.35***	-.27*	-.32**
	5 Personal Control					1.00	.46	-.15	-.21	-.21	-.14	-.19
	6 Control Ideology						1.00	-.33**	-.32**	-.34**	-.34**	-.36***
Iowa Test of Basic Skills n=53	7 Vocabulary							1.00	.77***	.77***	.73***	.90***
	8 Reading								1.00	.85***	.88***	.93***
	9 Language									1.00	.86***	.94***
	10 Arithmetic										1.00	.93***
	11 Composite											1.00

* $p < .05$
** $p < .02$
*** $p < .01$

Table 3

Average number of months below expected grade level for Composite student achievement (at the classroom level) as related to teacher's Context-derived Origin Orientation (low vs. high) and teacher's Locus of Control (Internal vs. External): Two-Way Analysis of Variance[a]

	Locus of Control		Levels of Origin Orientation
Context-derived Origin Orientation	Internal	External	Means
Low	8 mos. (n=12)	15 mos. (n=13)	12 mos. (n=25)
High	4 mos. (n=15)	7 mos. (n=14)	5 mos. (n=29)
Types of Locus of Control Means	6 mos. (n=27)	11 mos. (n=27)	

Analysis of Variance

Source of variation	Sum of squares	df.	Mean square	F
1. Context-derived Origin orientation	7730	1	7730	10.418**
2. Locus of Control	4476	1	4476	6.033*
3. Interaction	438	1	438	.590
4. Error	37100	50	742	

* $p < .02$
** $p < .01$

[a] Analysis of variance was computed on scores transformed to insure across-grade level equivalency; the above cell means are the number of months below expected grade level represented by the averaged transformed scores.